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AUTHOR Kochtanek, Thomas R.
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ABSTRACT

A user survey was conducted at the Hugh Stephens College Library to determine the degree of user satisfaction and identify limiting factors. Analysis of data from 203 data sheets completed by patrons requesting specific titles reveals that acquisitions by the library and user error are more significant limiting factors in this library than either circulation or library error. It is recommended that further study be made of the extent of use of the holdings of other libraries, and of the proportion of users who come to browse or search by subject rather than specific title, before changing acquisitions policy. A significant proportion of user error indicates a lack of adequate library searching techniques, and it is suggested that assistance be provided for potential users through such means as library orientation programs and signs alerting them to commonly committed errors or the location of special collections. The survey questionnaire, methodology, and data analysis are included. (RAA)

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USER SATISFACTION IN THE HUGH STEPHENS COLLEGE LIBRARY

by

Thomas R. Kochtanek

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USER SATISFACTION IN THE HUGH STEPHENS COLLEGE LIBRARY

By Thomas R. Kochtanek
Associate Professor of Information Science,
University of Missouri-Columbia

INTRODUCTION

One generally assumes that users of college and research libraries have above average skills and experience when it comes to locating specific documents housed within the library. Another process often taken for granted is the ability of the library and its location tools to facilitate that matching of a patron with a request for a specific title. More often than not this library-patron interface remains unexplored. It is the objective of this study to better examine the interface, to sample, analyze and evaluate both the performance of the library and of the patron with respect to the objectives and standards of both.

Techniques or methods which address these types of objectives are often referred to as library effectiveness studies, several of which have been reported in the library literature. For example, an early study conducted by Kochen and Tagliacozzo reported that libraries on the average acquire approximately 90 percent of those materials which patrons might specifically request.[1] Clearly any library will have difficulty meeting those immediate demands for specific titles should that library select and acquire only a small proportion of those documents most likely to be requested by patrons.

This should not imply, however, that the acquisition of a significant proportion of those materials most likely to be requested will guarantee user satisfaction. Documents must be searched and located--a process generally facilitated by the card catalog--before user satisfaction can be attained. Studies examining card catalog factors are often labelled "user frustration studies" for reasons which should be apparent. That same study found that 44

percent of the searches were successful and that 28 percent of the patrons made mistakes at the card catalog.[2] Studies conducted at Cambridge University focused on three factors of user frustration.[3] Researchers found that 5 percent of those titles requested were never acquired, 20 percent of those acquired and requested were not immediately available, and 12 percent of all requests were unsatisfied due to inadequate searching by patrons. Among the many studies conducted at the University of Lancaster, researchers observed an overall satisfaction ratio of just about 50 percent. A follow-up study, conducted after the instigation of a shorter loan period, showed an increase in user satisfaction.[4]

Only a single effort reported in the literature has attempted to address integrated factors which affect the overall satisfaction rate of library users. This study, carried out at Case Western Reserve University in Cleveland, Ohio, examined the following areas of user frustration:

(1) frustration due to the fact that requested materials were not acquired by library;
(2) frustration due to the fact that materials are currently being used by another patron;
(3) frustration due to library error (several factors); and
(4) frustration due to user error (several factors).

These factors will be examined later in greater detail. First let us move to a discussion of the setting and data gathering procedures utilized in the study.

SETTING AND PROCEDURES FOR RECORDING DATA

This study was conducted at Stephens College, a privately supported liberal arts college for women in Columbia, Missouri. The enrollment at the time of the study (April, 1978) was about 2,000 with a faculty of 148. Hugh Stephens Library has a collection in excess of 106,000 volumes and is the only library on campus, though the nearby campus of the University of Missouri-Columbia does offer access for Stephens College to the extensive collection of the main library and several

subject specialized branches.

The data reported in this study were collected through interviews with patrons at the card catalog during a one week period from April 3-9, 1978. The research team consisted of five library and information science graduate students under the direction of faculty member Thomas R. Kochtanek.[6]

In order to allow for fluctuation of library use over the course of the week, the survey was conducted on this schedule:

Monday-Thursday--9:00-11:00 a.m., 12:00-4:00 p.m., 5:30-9:00 p.m.
Friday----------9:00-11:00 a.m., 12:00-4:00 p.m.
Saturday--------9:00-11:00 a.m., 12:00-4:00 p.m.
Sunday----------1:00-4:00 p.m., 5:30-9:00 p.m.

The original schedule was changed to the above after the examination of statistics of library use kept by the Stephens' staff showed heavier than expected use immediately following the noon and evening meals in the nearby cafeteria. These same statistics showed very little use of the library on Friday and Saturday evenings, so these hours were cut from the schedule. The library opened at 1:00 p.m. on Sundays.

Users seeking specific documents were asked to fill out a data sheet containing space for author, title and call number. For the purpose of this study no statistics were taken for searches other than those for specific works; users engaged in subject searches were not interviewed. As patrons left the library a team member collected these slips and conducted a brief interview of those users who were unsuccessful in obtaining desired materials. The attempt was then made to ascertain the reasons for their lack of success by recreating those steps taken by the patron. Members of the research team were then able to determine which factor in the process of searching caused patron dissatisfaction. The student then recorded that finding on the data sheet initially given to the library patron as a scratch sheet. The specific categories depicting factors in

frustration can be seen on the sample data sheet in Figure 1 (on page 15).

The data sheet was handed to each consenting library user contacted at the author or title catalog in the library. The user was instructed to utiliz the upper portion of the data sheet as scratch paper for recording bibliograph information. The data sheet was then collected as the user left the library; all that was asked of the user was whether the title had been located or not.

The research team then returned to the card catalog to see if they were able to determine the exact cause of frustration for each document not obtaine Those causes were then recorded in the appropriate section on the data sheet a the completed sheets were added to those data sheets which recorded satisfacto library service.

RESULTS

A total of 203 requests for specific documents were collected. Of those requests, 117 or 57.6 percent were satisfied. The aggregated data for the ent sample are depicted in Table 1 (on page 16). The notations listed in the rightmost column will be used to represent the various categories and subcategories. W, S, and D represent the overall request and satisfaction data, while D_a, D_c, D_l, and D_u represent the distribution of those D = 86 unsatisfied requests.

Table 1 presents the results of the survey of satisfied and dissatisfied (frustrated) requests for books from Hugh Stephens Library. The notation is a follows:

W = total number of requests.
S = number immediately satisfied.
D = number of dissatisfied requests.

The dissatisfied requests were further classified into four general categories

D_a = number attributable to library acquisitions--the title was not the library collection.
D_c = number due to the book being in circulation (loan or in-house u
D_l = number attributable to library error.
D_u = number attributable to user error.

Within some dissatisfaction categories the reasons for failure were broke down further. Explanations are given with Table 1.

FOR PATRON USE

Call number:

Author:

Title of document:

PLEASE DO NOT WRITE IN THIS SPACE

_____Serial
_____Document obtained
_____Document not obtained
_____Not acquired
_____In use
  _____L
  _____HS
  _____IHU
_____Library error
  _____M & K
  _____M & NK
  _____MSH
  _____PRE-SH
  _____REPR
  _____BNDING
_____ULPat
  _____CL#
  _____DOSH
  _____DORES

CODES

L---------on loan
HS--------hold shelf
IHU-------in-house use
M & K-----missing & known by library
M & NK----missing & not known by library
MSH-------misshelved
PRE-SH----on pre-shelving shelves
REPR------being repaired
BNDING----at bindery
CL#-------incorrect call number
DOSH------document on shelf
DORES-----document on reserve

Figure 1

Sample Questionnaire

Table 1

RESULTS OF THE 1978 SURVEY OF SATISFIED AND UNSATISFIED (FRUSTRATED) REQUESTS FOR BOOKS AT THE HUGH STEPHENS LIBRARY, STEPHENS COLLEGE, COLUMBIA, MISSOURI

				Notation
I.	Total number of requests		203	
II.	Number immediately satisfied		117	W
III.	Number not immediately satisfied		86	S
IV.	Distribution of unsatisfied requests			D
	A. Number of books not acquired		37	
	B. Number circulating (or in-house use)	15		D_a
	1. circulating on loan		15	D_c
	2. on hold shelf*		0	
	3. in-house use		0	
	C. Number of library malfunctions	6		
	1. missing and known missing		0	D_l
	2. missing and not known missing		5	
	3. misshelved		0	
	4. pre-shelving shelves**		0	
	5. book being repaired or bound		1	
	D. Number of user errors	28		D_u
	1. incorrect information		4	
	2. book properly shelved		16	
	3. book on reserve		8	
	4. book located elsewhere***		0	

*a book which has been recalled is held at the circulation desk hold shelf until checked out by the recaller.

**books picked up from the tables are brought to the pre-shelving area to be arranged by call number.

***books located in special areas of the library.

A MODEL FOR THE SEARCHING PROCESS;

METHOD OF ANALYSIS

Consider the process a patron undergoes when he/she attempts to locate a specific title from within the library collection. Several potential barriers exist, each of which might cause that patron to become dissatisfied. For example, when a user consults the catalog and finds no record of that specific title in the catalog, then he/she might deduce the fact that the library has not acquired that particular title (we will assume all documents on shelves are represented in the card catalog). Hence, the patron leaves the library dissatisfied due to the fact that the title was not in the library collection (D_a). On the other hand, suppose the card was in the catalog. Then the user jots the call number down and proceeds to the stacks. From this point on, three factors can come into play. If that title has been acquired but is circulating, then the user is not immediately satisfied (hence frustrated due to circulation or D_c). If the title has been acquired, is not circulating, but the library has inadequate records regarding its whereabouts, then the user is frustrated due to library error, D_l. And lastly, if all of these previous factors are successfully overcome, but the library patron has made some error in locating the title, then he/she has been frustrated due to user error, D_u.

One can adequately describe this process through the use of a branching diagram, where each logical step represents a branch off a main path. Such a diagram is depicted in Figure 2 (on page 18). The data and notation from Table 1 are included in the figure.

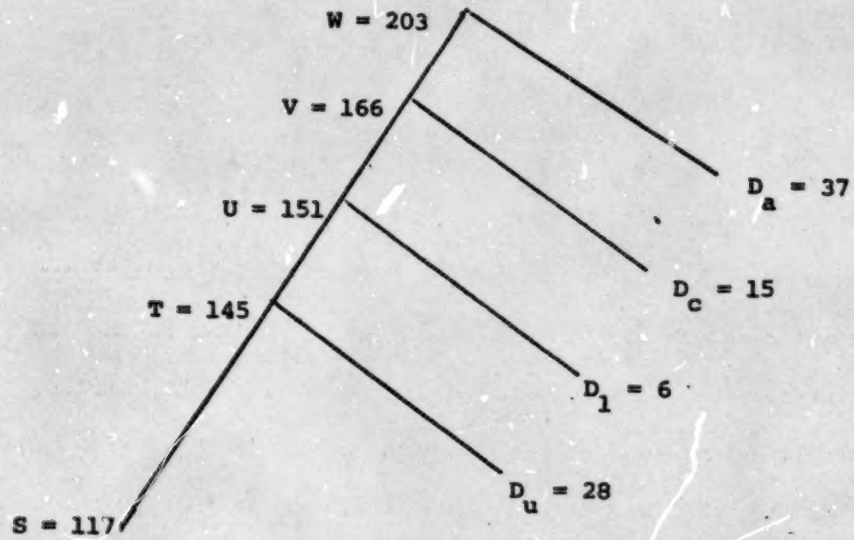

Figure 2

The interesting fact about this diagram is that the factors of dissatisfaction, each one represented by a single branch, are both independent and mutually exclusive, which makes the diagram an idea model for purposes of analysis. Because each branch represents the current status of the patron with respect to all other previous branches, we can compute the ratio of satisfaction for each branch of the diagram. That performance measure is simply the ratio of the number of requests satisfied at one stage to the number of requests satisfied in the previous stage. For example, the performance measure for library acquisition, P_a, is simply the number of requests satisfied due to the fact that the title has been acquired (V) divided by the total number of requests (W). Table 2 (on page 19) represents those performance measures as derived from the values given in Table 1 and Figure 2.

Table 2

MEASURES OF PERFORMANCE FOR HUGH STEPHENS LIBRARY,

FROM THE OUTCOMES OF REQUESTS FOR BOOKS DURING THE SURVEY OF 1978

		Standard deviation
Acquisition	P_a = V/W = 166/203 = 81.8%	2.22%
Circulation	P_c = U/V = 151/166 = 91.0%	2.01%
Library Malfunction	P_l = T/U = 145/151 = 96.0%	1.38%
User Error	P_u = S/T = 117/145 = 80.7%	2.77%
Satisfaction Level	P_s = S/W = 117/203 = 57.6%	3.47%

Note that although each performance measure alone is over the 80 percent level, the overall satisfaction ratio is only 57.6 percent. Each factor whittles away at the overall satisfaction rate. Mathematically speaking, the performance measures combine, in a multiplicative sense, to represent the overall level of satisfaction. That is the product of the four measures equals P_s:

$$P_s = P_a \cdot P_c \cdot P_l \cdot P_u$$

As noted earlier, each factor has its own effect on the overall rate. These effects will be discussed in greater depth in the following section.

The figures in the rightmost column of Table 2 are the estimated deviations of the performance measures. Since these performance measures are based upon samples of requests, not upon the total population of requests, they are valid only for that sample. Standard deviation allows us to generalize our findings to a larger population of requests for specific documents. The standard deviation is calculated by using the formula:

$$\sigma = \sqrt{\frac{P \quad (1 - P)}{N}}$$

Where P = performance measure
N = total sample size

DISCUSSION AND CONCLUSIONS

The overall satisfaction level in our sample was 57.6 percent. In other words, approximately 58 out of every 100 requests for specific titles are immediately satisfied. This level of performance is comparable to those levels reported in similar studies. Although the overall satisfaction level sounds rather poor, keep in mind that if each branch in the diagram was performing at a 90 percent then

$P_s = (.9)(.9)(.9)(.9) = .6561$ or 65.6%

The 65.6 level is not terribly impressive either. But the performance at each branch is consistently high. If one of the objectives of the library was to

improve service in this area, then surely the library director must move to upgrade the performance at those branches which seriously affect the overall satisfaction rate. Let us examine each of those values and discuss alternatives which might improve performance in each category.

Acquisition (P_a = 81.8%)

The library has acquired approximately 82 out of every 100 books requested by title by users. Higher levels of acquisition were found by Saracevic, et al., who have reported an average performance level of approximately 90 percent. The Stephens College Library has been able to counteract this lower level of performance through cooperative efforts with the staff of Ellis Library, the main research library at the nearby University of Missouri-Columbia campus. Resources at Ellis have been used to fill requests for materials which have not been selected for purchase by the Stephens staff. Remember, however, that this performance reflects <u>immediate</u> satisfaction. Interlibrary loan agreements might improve overall satisfaction rates, but not those rates defined by this model.

Circulation (P_c = 91%)

Of the total number of titles requested by the patron and acquired by the library, only one out of ten (actually 9 percent) were out on loan or in use within the library. This 9 percent level seems quite low when compared to a range of 13 to 23 percent reported in previous studies. The library has a rather short loan period which varies between eight and fourteen days. Many college or research libraries have monthly or semester loan periods, which keep materials out for longer periods of time, leading to a decrease in the proportion of immediately satisfied users.

Library Error (P_l = 96%)

Of those titles which were acquired, requested by title, and not circulating, only 4 percent could not be located due to library error. Of the six items in

this category, five were missing and not known to be missing by the library staff. These titles may have been stolen or misshelved. Were this factor studied further and found to be a significant factor, then suggestions for corrections might range from correcting the shelving problems to improving the library's security system. A small number of misplaced materials which are high in demand can lead to a significant decrease in library performance.

User Error (P_u = 80.7%)

For every ten requests which were acquired by the library, not circulating, and made available by library operations, approximately two of those requests were left unsatisfied due to user mistakes of various natures. This finding is typical of many libraries, and is a limiting factor in making services available to the community of users. Of those twenty-eight errors made by users, fully sixteen were errors of location, where the book was found to be properly shelved by the research team. None of these documents were located in any of the special areas of the library, where one might expect some confusion as to location (e.g., oversize shelving). Another eight documents were found to be on reserve shelving and the user failed to search there. Errors of this type are indications that a significant portion of the user population (if we were to correlate a single request to a single user, then this figure would be approximately 20 percent of the user population) is deficient in some of the more basic features of searching in a library. Of the four performance factors studied, user performance was the limiting factor in that sequence of events which matches the document with the request for that document. A possible solution might be an orientation program aimed at teaching the user some basic searching techniques:

(1) instruction in card catalog usage;
(2) layout of general shelving pattern (link between document and catalog card);
(3) identification of special collections (oversize, reserve, women's studies);
(4) common searching mistakes.

A program beginning with these types of instruction could prove to be very effective in improving the inexperienced user's searching methods.

SUMMARY AND LIMITATIONS

An operations research branching technique was utilized as a framework for the analysis of data gathered pertaining to the frustration of users attempting to locate documents in a library. Four levels or factors of dissatisfaction were examined:

(1) dissatisfaction due to the library not having acquired the document;
(2) due to the document already being in use;
(3) due to various library errors; and
(4) due to various user errors.

An analysis such as this is limited by two major factors: the scope of the experimental design and the size of the sample. As stated earlier, this study was designed to capture that data pertaining to a title search only. That is, the study reflects satisfaction/dissatisfaction only for those users who enter the doors of the library with a specific title in mind. Those users who are subject searching or browsing are not examined for satisfaction. An entirely different design is necessary to study these types of users. Also, the sample size of the experiment was 203, or roughly 10 percent of the population of potential users. More indicative results might have been obtained were they based on a larger sample size. The limiting factor here was the time period set aside to gather data. Under ideal conditions, data would be gathered until a more representative sample was arrived at.

CONCLUSION AND RECOMMENDATIONS

This study indicates that the limiting factors in determining a user satisfaction rate are those involving acquisitions and the library user herself/himself. As discussed previously, the acquisitions factor may be slightly influenced by available resources in the locality, primarily UMC's Ellis Library. Before making any policy revisions in this area, two additional factors need to

be examined:

(1) to what extent are those holdings at other libraries utilized, and
(2) what proportion of potential users actually come to the library with a specific title in mind, as opposed to those who browse or subject search?

The first factor involves external or supplementary resources, while the second explores the actual in-house use of the existing collection. A close examination of this latter factor may reveal that only a small proportion of users have specific titles in mind, and as such the overall library satisfaction rate may not be affected by a 20 percent dissatisfaction rate. Should a significant proportion of users request specific titles, then either the collection should be expanded or supplementary sources should be identified for the users.

The rather high rate of dissatisfaction due to user error was highlighted in a previous section. It is evident that a significant proportion of library users possess inadequate library searching techniques. This factor is not dependent upon title only requests, but is also affected by subject searching users. Hence this inadequacy may be more widespread than the previous limitation (acquisition of materials), thus having a greater impact on the overall satisfaction rate of the library. A possible solution would be to educate the potential users of the library in the proper use of that library. Several methods exist, the most common being the orientation program. Another alternative might utilize signs to alert users to commonly committed errors or the location of special collections. Whatever the method, some effort needs to be expanded in the attempt to educate potential users.

The remaining pair of factors, circulation and library error, are well above expected values and do not contribute significantly to user frustration. This seems to indicate that the existing loan policy and those procedures required for the "restocking" of the shelves are operating in a manner so as to enhance user satisfaction.